IN THE CLAIMS:

Please cancel claims 185, 188 and 218 without prejudice, and amend claims 103, 112, 123, 124, 127, 130, 131, 142, 151-155, 158-161, 170, 179, 186, 187, 197, 199, 212, 213, 215, 217, 223, 232, 237 and 302-306, as provided below in the associated claim listing on separate sheets:

103. (Currently Amended) An apparatus for optical imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a non-reflective reference;

at least one spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second electro-magnetic radiation into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ configured to detect at least a portion of at least one of the frequency components,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

104. (Previously Presented) The apparatus according to claim 103, wherein the non-reflective reference is a transmissive reference.

105. (Previously Presented) The apparatus according to claim 103, further comprising at least one polarization controller.

106. (Previously Presented) The apparatus according to claim 103, further comprising at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation and the second electro-magnetic radiation.

107. (Previously Presented) The apparatus according to claim 103, further comprising:

a source generating a third electro-magnetic radiation; and

at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and the third electro-magnetic radiation.

108. (Previously Presented) The apparatus according to claim 103, further comprising:

a source generating a third electromagnetic radiation; and

a splitter configured to separate the third electro-magnetic radiation into a fourth electro-magnetic radiation directed to the reference and a fifth electro-magnetic radiation directed to the sample.

109. (Previously Presented) The apparatus according to claim 108, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

110. (Previously Presented) The apparatus according to claim 103, further comprising a splitter configured to combine the first and second electro-magnetic radiations.

111. (Previously Presented) The apparatus according to claim 110, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

112. (Currently Amended) The apparatus according to claim 103, wherein the detectors comprise at least one of (i) at least one single-dimensional detector array, and (ii) at least one multi-dimensional detector array.

113. (Previously Presented) The apparatus according to claim 103, wherein the spectral separating unit comprises at least one of (i) at least one reflection grating, (ii) at least one transmission grating, and (iii) at least one spectrally dispersive component.

114. (Previously Presented) The apparatus according to claim 103, further comprising at least one charge coupled device coupled to the at least one detection arrangement.

115. (Previously Presented) The apparatus according to claim 103, further comprising at least one bandpass filter coupled to the at least one detection arrangement.

116. (Previously Presented) The apparatus according to claim 115, wherein the bandpass filter is an electronic bandpass filter.

117. (Previously Presented) The apparatus according to claim 103, further comprising at least one analog to digital converter coupled to the at least one detection arrangement.

118. (Previously Presented) The apparatus according to claim 103, further comprising at least one processing arrangement receiving information which is at least partially based on the at least one of the frequency components.

119. (Previously Presented) The apparatus according to claim 103, further comprising at least one acousto-optic modulator coupled to the at least one detection arrangement.

120. (Currently Amended) An ~~The~~ apparatus ~~according to claim 103~~ for optical imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a non-reflective reference;

at least one spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and a combination of the first and second electro-magnetic radiation into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector configured to detect at least a portion of at least one of the frequency components,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another, and

wherein at least two of the detectors detect a common one of the frequency components, wherein a first one of the at least two of the detectors receives a first signal which has a first phase difference between the first and second electro-magnetic radiation, and a second one of at least two of the detectors receives a second signal which has a second phase difference between the first and second electro-magnetic radiation, the first and second phase differences being different from one another.

121. (Previously Presented) The apparatus according to claim 120, wherein the first and second ones of the detectors detect the common one of the frequency components in an approximately simultaneous manner.

122. (Previously Presented) The apparatus according to claim 120, wherein the first and second phase differences are different from one another by approximately periodic of at least one of 15, 30, 45, 60, 75, 90 and 180 degrees.

123. (Currently Amended) The apparatus according to claim 103, wherein the detection arrangement generates at least one signal based on the frequency components and reduces ~~reducing~~ noise of the at least one signal.

124. (Currently Amended) The apparatus according to claim 103, wherein the detection arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic radiations, and detect~~ing~~ a polarization state of at least one of the electro-magnetic radiations.

125. (Previously Presented) The apparatus according to claim 124, wherein the received electro-magnetic radiations are generated by splitting a combination of the first and second electro-magnetic radiations using a polarization-sensitive arrangement.

126. (Previously Presented) The apparatus according to claim 124, wherein a first one of the at least two of the detectors receives a first signal which has a first polarization of at least one of the first and second electro-magnetic radiations, and a second one of at least two of the detectors receives a second signal which has a second polarization of at least one of the first and second electro-magnetic radiations, the first and second polarization being different from one another.

127. (Currently Amended) The apparatus according to claim 103, further comprising:

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations; and

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second ~~arms~~ electro-magnetic radiations.

128. (Previously Presented) The apparatus according to claim 127, wherein the second arrangement controls a phase of at least one of the first and second electro-magnetic radiations.

129. (Previously Presented) The apparatus according to claim 127, wherein the second arrangement maximizes a signal-to-noise ratio of a signal associated with the at least one image.

130. (Currently Amended) A method for optical imaging, comprising the steps of:

receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a non-reflective reference;

separating spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second light signals into frequency components; and

causing ~~enabling~~ at least one detection of at least a portion of at least one of the frequency components using a plurality of detectors,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

131. (Currently Amended) An apparatus for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one ~~of~~ spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and

combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ configured to detect at least a portion of at least one of the frequency components, wherein at least two of the detectors detect a common one of the frequency components, wherein a first one of the at least two of the detectors receives a first signal which has a first phase difference between the first and second electro-magnetic radiation, and a second one of at least two of the detectors receives a second signal which has a second phase difference between the first and second electro-magnetic radiation, the first and second phase differences being different from one another,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

132. (Previously Presented) The apparatus according to claim 131, wherein the first and second ones of the detectors detect the common one of the frequency components in an approximately simultaneous manner.

133. (Previously Presented) The apparatus according to claim 131, wherein the first and second phase differences are different from one another by approximately periodic of at least one of 15, 30, 45, 60, 75, 90 and 180 degrees.

134. (Previously Presented) The apparatus according to claim 131, wherein the reference is a transmissive reference.

135. (Previously Presented) The apparatus according to claim 131, further comprising at least one polarization controller.

136. (Previously Presented) The apparatus according to claim 131, further comprising at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation and the second electro-magnetic radiation.

137. (Previously Presented) The apparatus according to claim 131, further comprising:

a source generating a third electro-magnetic radiation; and

at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and the third electro-magnetic radiation.

138. (Previously Presented) The apparatus according to claim 131, further comprising:

a source generating a third electromagnetic radiation; and

a splitter configured to separate the third electro-magnetic radiation into a fourth electro-magnetic radiation directed to the reference and a fifth electro-magnetic radiation directed to the sample, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

139. (Previously Presented) The apparatus according to claim 138, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

140. (Previously Presented) The apparatus according to claim 131, further comprising a splitter configured to combine the first and second electro-magnetic radiations, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

141. (Previously Presented) The apparatus according to claim 140, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

142. (Currently Amended) The apparatus according to claim 131, wherein the detectors comprise at least one of (i) at least one single-dimensional detector array, and (ii) at least one multi-dimensional detector array.

143. (Previously Presented) The apparatus according to claim 131, wherein the spectral separating unit comprises at least one of (i) at least one reflection grating, (ii) at least one transmission grating, and (iii) at least one spectrally dispersive component.

144. (Previously Presented) The apparatus according to claim 131, further comprising at least one charge coupled device coupled to the at least one detection arrangement.

145. (Previously Presented) The apparatus according to claim 131, further comprising at least one bandpass filter coupled to the at least one detection arrangement.

146. (Previously Presented) The apparatus according to claim 145, wherein the bandpass filter is an electronic bandpass filter.

147. (Previously Presented) The apparatus according to claim 131, further comprising at least one analog to digital converter coupled to the at least one detection arrangement.

148. (Previously Presented) The apparatus according to claim 131, further comprising at least one processing arrangement receiving information which is at least partially based on the at least one of the frequency components.

149. (Previously Presented) The apparatus according to claim 131, further comprising at least one acousto-optic modulator coupled to the at least one detection arrangement.

150. (Previously Presented) The apparatus according to claim 131, wherein the reference is non-reflective.

151. (Currently Amended) The apparatus according to claim 131, wherein the detection arrangement generates at least one signal based on the frequency components and ~~reducing~~ reduces noise of the at least one signal.

152. (Currently Amended) The apparatus according to claim 131, wherein the detection arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic

radiations, and detecting a polarization state of at least one of the electro-magnetic radiations.

153. (Currently Amended) The apparatus according to claim ~~131~~152, wherein the received electro-magnetic radiations are generated by splitting a combination of the first and second electro-magnetic radiations using a polarization-sensitive arrangement.

154. (Currently Amended) The apparatus according to claim 131, wherein a first one of the at least two of the detectors receives a first signal which has a first polarization of at least one of the first and second electro-magnetic radiations, and a second one of at least two of the detectors receives a second signal which has a second polarization of at least one of the first and second electro-magnetic radiations, the first and second polarizations being different from one another.

155. (Currently Amended) The apparatus according to claim 131, further comprising:

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations; and

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second ~~arms~~ electro-magnetic radiations.

156. (Previously Presented) The apparatus according to claim 155, wherein the second arrangement controls a phase of at least one of the first and second electro-magnetic radiations.

157. (Previously Presented) The apparatus according to claim 155, wherein the second arrangement maximizes a signal-to-noise ratio of a signal associated with the at least one image.

158. (Currently Amended) A method for imaging, comprising:

receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

separating spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and combination of the first and second electro-magnetic radiations into frequency components; and

causing ~~enabling~~ at least one detection of at least a portion of at least one of the frequency components using a plurality of detectors, wherein at least two of the detectors detect a common one of the frequency components, wherein a first one of the at least two of the detectors receives a first signal which has a first phase difference between the first and second electro-magnetic radiation, and a second one of at least two of the detectors receives a second signal which has a second phase difference between the first and second electro-magnetic radiation, the first and second phase differences being different from one another,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

159. (Currently Amended) An apparatus for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one ~~of~~ spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including ~~a plurality of~~ at least three detectors, each of the detectors ~~capable of detecting~~ configured to detect at least a portion of at least one of the frequency components, wherein the detection arrangement generates at least one signal based on the frequency components and ~~reducing~~ reduces noise of the at least one signal,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

160. (Currently Amended) An ~~The~~ apparatus ~~according to claim 159~~ for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and a combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector configured to detect at least a portion of at least one of the frequency components, wherein the detection arrangement generates at least one signal based on the frequency components and reduces noise of the at least one signal,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another, and

wherein ~~the first and second ones~~ at least two of the detectors detect the common one of the frequency components in an approximately simultaneous manner.

161. (Currently Amended) The apparatus according to claim 158~~159~~, wherein the first and second phase differences are different from one another by approximately periodic of at least one of 15, 30, 45, 60, 75, 90 and 180 degrees.

162. (Previously Presented) The apparatus according to claim 159, wherein the reference is a transmissive reference.

163. (Previously Presented) The apparatus according to claim 159, further comprising at least one polarization controller.

164. (Previously Presented) The apparatus according to claim 159, further comprising at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation and the second electro-magnetic radiation.

165. (Previously Presented) The apparatus according to claim 159, further comprising:

a source generating a third electro-magnetic radiation; and

at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and the third electro-magnetic radiation.

166. (Previously Presented) The apparatus according to claim 159, further comprising:

a source generating a third electromagnetic radiation; and

a splitter configured to separate the third electro-magnetic radiation into a fourth electro-magnetic radiation directed to the reference and a fifth electro-magnetic radiation directed to the sample, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

167. (Previously Presented) The apparatus according to claim 166, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

168. (Previously Presented) The apparatus according to claim 159, further comprising a splitter configured to combine the first and second electro-magnetic radiations, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

169. (Previously Presented) The apparatus according to claim 168, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

170. (Currently Amended) The apparatus according to claim 159, wherein the detectors comprise at least one of (i) at least one single-dimensional detector array, and (ii) at least one multi-dimensional detector array.

171. (Previously Presented) The apparatus according to claim 159, wherein the spectral separating unit comprises at least one of (i) at least one reflection grating, (ii) at least one transmission grating, and (iii) at least one spectrally dispersive component.

172. (Previously Presented) The apparatus according to claim 159, further comprising at least one charge coupled device coupled to the at least one detection arrangement.

173. (Previously Presented) The apparatus according to claim 159, further comprising at least one bandpass filter coupled to the at least one detection arrangement.

174. (Previously Presented) The apparatus according to claim 173, wherein the bandpass filter is an electronic bandpass filter.

175. (Previously Presented) The apparatus according to claim 159, further comprising at least one analog to digital converter coupled to the at least one detection arrangement.

176. (Previously Presented) The apparatus according to claim 159, further comprising at least one processing arrangement receiving information which is at least partially based on the at least one of the frequency components.

177. (Previously Presented) The apparatus according to claim 159, further comprising at least one acousto-optic modulator coupled to the at least one detection arrangement.

178. (Previously Presented) The apparatus according to claim 159, wherein the reference is non-reflective.

179. (Currently Amended) The apparatus according to claim 159, wherein the detection arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic radiations, and detect~~ing~~ a polarization state of at least one of the electro-magnetic radiations.

180. (Previously Presented) The apparatus according to claim 179, wherein the received electro-magnetic radiations are generated by splitting a combination of the first and second electro-magnetic radiations using a polarization-sensitive arrangement.

181. (Previously Presented) The apparatus according to claim 179, wherein a first one of the at least two of the detectors receives a first signal which has a first polarization of at least one of the first and second electro-magnetic radiations, and a second one of at least two of the detectors receives a second signal which has a second polarization of at least one of the first and second electro-magnetic radiations, the first and second polarization being different from one another.

182. (Previously Presented) The apparatus according to claim 159, further comprising:

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations; and

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second arms

183. (Previously Presented) The apparatus according to claim 182, wherein the second arrangement controls a phase of at least one of the first and second electro-magnetic radiations.

184. (Previously Presented) The apparatus according to claim 182, wherein the second arrangement maximizes a signal-to-noise ratio of a signal associated with the at least one image.

Claim 185 (Cancelled).

186. (Currently Amended) An apparatus for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one of spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ configured to detect at least a portion of at least one of the frequency components, wherein the detection arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic radiations and detect~~ing~~ a polarization state of at least one of the electro-magnetic radiations,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

187. (Currently Amended) An ~~The~~ apparatus ~~according to claim 186~~ for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one of spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and a combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector configured to detect at least a portion of at least one of the frequency components, wherein the detection arrangement is configured to receive at least two electro-magnetic radiations and detecting a polarization state of at least one of the electro-magnetic radiations,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another, and

wherein ~~the first and second ones~~ at least two of the detectors detect the common one of the frequency components in an approximately simultaneous manner.

Claim 188 (Cancelled).

189. (Previously Presented) The apparatus according to claim 186, wherein the reference is a transmissive reference.

190. (Previously Presented) The apparatus according to claim 186, further comprising at least one polarization controller.

191. (Previously Presented) The apparatus according to claim 186, further comprising at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation and the second electro-magnetic radiation.

192. (Previously Presented) The apparatus according to claim 186, further comprising:

a source generating a third electro-magnetic radiation; and

at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and the third electro-magnetic radiation.

193. (Previously Presented) The apparatus according to claim 186, further comprising:

a source generating a third electromagnetic radiation; and

a splitter configured to separate the third electro-magnetic radiation into a fourth electro-magnetic radiation directed to the reference and a fifth electro-magnetic radiation directed to the sample, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

194. (Previously Presented) The apparatus according to claim 193, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

195. (Previously Presented) The apparatus according to claim 186, further comprising a splitter configured to combine the first and second electro-magnetic radiations, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

196. (Previously Presented) The apparatus according to claim 195, wherein the splitter is at least one of a fiberoptic splitter and a bulk optic splitter.

197. (Currently Amended) The apparatus according to claim 186, wherein the detectors comprise at least one of (i) at least one single-dimensional detector array, and (ii) at least one multi-dimensional detector array.

198. (Previously Presented) The apparatus according to claim 186, wherein the spectral separating unit comprises at least one of (i) at least one reflection grating, (ii) at least one transmission grating, and (iii) at least one spectrally dispersive component.

1998. (Currently Amended) The apparatus according to claim 186, further comprising at least one charge coupled device coupled to the at least one detection arrangement.

200. (Previously Presented) The apparatus according to claim 186, further comprising at least one bandpass filter coupled to the at least one detection arrangement.

201. (Previously Presented) The apparatus according to claim 200, wherein the bandpass filter is an electronic bandpass filter.

202. (Previously Presented) The apparatus according to claim 186, further comprising at least one analog to digital converter coupled to the at least one detection arrangement.

203. (Previously Presented) The apparatus according to claim 186, further comprising at least one processing arrangement receiving information which is at least partially based on the at least one of the frequency components.

204. (Previously Presented) The apparatus according to claim 186, further comprising at least one acousto-optic modulator coupled to the at least one detection arrangement.

205. (Previously Presented) The apparatus according to claim 186, wherein the reference is non-reflective.

206. (Previously Presented) The apparatus according to claim 186, wherein the received electro-magnetic radiations are generated by splitting a combination of the first and second electro-magnetic radiations using a polarization-sensitive arrangement.

207. (Previously Presented) The apparatus according to claim 186, wherein a first one of the at least two of the detectors receives a first signal which has a first polarization of at least one of the first and second electro-magnetic radiations, and a second one of at

least two of the detectors receives a second signal which has a second polarization of at least one of the first and second electro-magnetic radiations, the first and second polarization being different from one another.

208. (Previously Presented) The apparatus according to claim 186, further comprising:

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations; and

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second arms

209. (Previously Presented) The apparatus according to claim 208, wherein the second arrangement controls a phase of at least one of the first and second electro-magnetic radiations.

210. (Previously Presented) The apparatus according to claim 208, wherein the second arrangement maximizes a signal-to-noise ratio of a signal associated with the at least one image.

211. (Previously Presented) The apparatus according to claim 186, wherein the detectors are provided as a single detection array.

212. (Currently Amended) The apparatus according to claim 186, wherein the polarization state of the at least one first electro-magnetic radiation is determined from the at least one of the at least two electro-magnetic radiations received by the detectors.

213. (Currently Amended) The apparatus according to claim 186, wherein the polarization state of the at least one first electro-magnetic radiation is determined from at least one of an amplitude and a phase difference of the at least one of the at least two electro-magnetic radiations received by the detectors.

214. (Previously Presented) The apparatus according to claim 208, wherein the phase difference is determined from an amplitude of electro-magnetic radiations received by the detectors.

215. (Currently Amended) A method for imaging, comprising:

receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

separating spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or combination of the first and second electro-magnetic radiations into frequency components; and

causing ~~enabling~~ at least one detection of at least a portion of at least one of the frequency components using at least one detection arrangement, wherein the detection arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic radiations and detecting a polarization state of at least one of the electro-magnetic radiations,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

216. (Currently Amended) An apparatus for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a first arm and at least one second electro-magnetic radiation from a second arm;

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations;

at least one of spectral separating arrangement which separates spectrum of a combination of the first and second electro-magnetic radiations into frequency components; and

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second arms,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

217. (Currently Amended) An ~~The~~ apparatus ~~according to claim 216 , further comprising~~ for imaging, comprising:

a device receiving at least one first electro-magnetic radiation from a first arm and at least one second electro-magnetic radiation from a second arm;

at least one first arrangement detecting a signal relating to the first and second electro-magnetic radiations, and determining a relative phase difference between the first and second electro-magnetic radiations;

at least one second arrangement controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second arms, wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. frequency components of the first and second electro-magnetic radiations interfere with one another; and

a plurality of detectors detecting a common one of the frequency components of the first and second electro-magnetic radiations in an approximately simultaneous manner.

Claim 218 (Cancelled).

219. (Previously Presented) The apparatus according to claim 216, wherein the first arm is a transmissive reference.

220. (Previously Presented) The apparatus according to claim 216, further comprising at least one polarization controller.

221. (Previously Presented) The apparatus according to claim 216, further comprising at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation and the second electro-magnetic radiation.

222. (Previously Presented) The apparatus according to claim 216, further comprising:

a source generating a third electro-magnetic radiation; and

at least one polarization modulator which is positioned in a path of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and the third electro-magnetic radiation.

223. (Currently Amended) The apparatus according to claim 216, wherein at least one of the first and second arrangement comprise at least one of (i) at least one single-dimensional detector array, and (ii) at least one multi-dimensional detector array.

224. (Previously Presented) The apparatus according to claim 216, further comprising a spectral separating unit which is at least one of (i) at least one reflection grating, (ii) at least one transmission grating, and (iii) at least one spectrally dispersive component.

225. (Previously Presented) The apparatus according to claim 216, further comprising at least one charge coupled device coupled to at least one of the first and second arrangements.

226. (Previously Presented) The apparatus according to claim 216, further comprising at least one bandpass filter coupled to at least one of the first and second arrangements.

227. (Previously Presented) The apparatus according to claim 226, wherein the bandpass filter is an electronic bandpass filter.

228. (Previously Presented) The apparatus according to claim 216, further comprising at least one analog to digital converter coupled to at least one of the first and second arrangements.

229. (Previously Presented) The apparatus according to claim 228, further comprising at least one processing arrangement receiving information which is at least partially based on at least one of the frequency components.

230. (Previously Presented) The apparatus according to claim 216, further comprising at least one acousto-optic modulator coupled to the at least one detection arrangement.

231. (Previously Presented) The apparatus according to claim 216, wherein the first arm is a non-reflective reference.

232. (Currently Amended) The apparatus according to claim 216, wherein at least one of the first and second arrangement is ~~capable of receiving~~ configured to receive at least two electro-magnetic radiations, and detecting a polarization state of at least one of the electro-magnetic radiations.

233. (Previously Presented) The apparatus according to claim 232, wherein the received electro-magnetic radiations are generated by splitting a combination of the first and second electro-magnetic radiations using a polarization-sensitive arrangement.

234. (Previously Presented) The apparatus according to claim 232, wherein a first one of the at least two of the detectors receives a first signal which has a first polarization of at least one of the first and second electro-magnetic radiations, and a second one of at least two of the detectors receives a second signal which has a second polarization of at least one of the first and second electro-magnetic radiations, the first and second polarization being different from one another.

235. (Previously Presented) The apparatus according to claim 216, wherein the second arrangement controls a phase of at least one of the first and second electro-magnetic radiations.

236. (Previously Presented) The apparatus according to claim 216, wherein the second arrangement maximizes a signal-to-noise ratio of a signal associated with the at least one image.

237. (Currently Amended) A method for imaging, comprising:

receiving at least one first electro-magnetic radiation from a first arm and at least one second electro-magnetic radiation from a second arm;

detecting a signal relating to the first and second electro-magnetic radiations;

separating spectrum of a combination of the first and second light signals into frequency components;

determining a relative phase difference between the first and second electro-magnetic radiations; and

controlling at least one of the first and second electro-magnetic radiations based on the relative phase difference so as to facilitate a generation of at least one image associated with at least one of the first and second arms,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

238-301 (Cancelled).

302. (Currently Amended) A storage medium including executable instructions thereon for tracking a phase of at least one electro-magnetic signal so as to reduce an attenuation of the at least one signal due to its fringe instability, wherein, when the executable instructions are executed by a processing system, the executable instructions configure the processing system to perform the steps comprising of:

a. obtaining first data associated with at least one first interferometric signal comprising a plurality of spectral bands separated from the at least one electro-magnetic signal;

b. causing a modulation of ~~modulating~~ the at least one first signal based on a modulating frequency of a modulating arrangement so as to generate at least one second signal;

c. causing a mixing of the at least one first signal with the at least one second signal so as to generate a resultant signal;

d. generating second data associated with an offset based on the resultant signal;

e. controlling a phase of the at least one first signal based on the offset to generate further information; and

f. generating an image based on at least a portion of the sample using the further information.

303. (Currently Amended) A probe for locating atherosclerotic plaque in a blood vessel, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a non-reflective reference;

at least one spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second electro-magnetic radiation into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ being configured to detect at least a portion of at least one of the frequency components,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

304. (Currently Amended) A probe for locating atherosclerotic plaque in a blood vessel, comprising:

a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference;

at least one of spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and combination of the first and second electro-magnetic radiations into frequency components; and

at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ being configured to detect at least a portion of at least one of the frequency components, wherein at least two of the detectors detect a common one of the frequency components, wherein a first one of the at least two of the detectors receives a first signal which has a first phase difference between the first and second electro-magnetic radiation, and a second one of at least two of the detectors receives a second signal which has a second phase difference between the first and second

electro-magnetic radiation, the first and second phase differences being different from one another,

wherein at least one of:

a. the first and second electro-magnetic radiations interfere with one another, and

b. the frequency components of the first and second electro-magnetic radiations interfere with one another.

305. (Currently Amended) An apparatus for delivering a therapeutic agent, comprising:

a) a probe disposed in ~~the~~ a housing and comprising:

i. a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a non-reflective reference;

ii. at least one spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation~~, the second electro-magnetic radiation and~~ or a combination of the first and second electro-magnetic radiation into frequency components; and

iii. at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ being configured to detect at least a portion of at least one of the frequency components,

wherein at least one of:

(I) the first and second electro-magnetic radiations interfere with one another, and

(II) the frequency components of the first and second electro-magnetic radiations interfere with one another; and

b) a conduit cooperating with the probe, and comprising a proximal end for receiving the therapeutic agent and a distal end for delivering the therapeutic agent at a predetermined location, the location being determined by imaging ~~the~~ an environment in proximity to the distal end using the probe.

306. (Currently Amended) An apparatus for delivering a therapeutic agent, comprising:

a) a probe disposed in the housing and comprising:

i. a device receiving at least one first electro-magnetic radiation from a sample and at least one second electro-magnetic radiation from a reference,

ii. at least one of spectral separating unit which separates spectrum of at least one of the first electro-magnetic radiation, the second electro-magnetic radiation and combination of the first and second electro-magnetic radiations into frequency components, and

iii. at least one detection arrangement including a plurality of detectors, each detector ~~capable of detecting~~ being configured to detect at least a portion of at least one of the frequency components, wherein at least two of the detectors detect a common one of the frequency components, wherein a first one of the at least two of the detectors receives a first signal which has a first phase difference between the first and second electro-magnetic radiation, and a second one of at least two of the detectors receives a second signal which has a second

phase difference between the first and second electro-magnetic radiation, the first and second phase differences being different from one another,

wherein at least one of:

(I) the first and second electro-magnetic radiations interfere with one another, and

(II) the frequency components of the first and second electro-magnetic radiations interfere with one another; and

b) a conduit cooperating with the probe, and comprising a proximal end for receiving the therapeutic agent and a distal end for delivering the therapeutic agent at a predetermined location, the location being determined by imaging the environment in proximity to the distal end using the probe.